

AMENDMENTS TO THE CLAIMS

Claim 1. (Currently Amended) A method of manufacturing an actuator system for acting upon a ~~material~~ blockage in a vessel of a vascular system, comprising the steps of:

providing a catheter adapted to be moved through the vessel to the blockage,

providing an optical fiber with a distal end, said optical fiber adapted to be carried by said catheter,

providing a diffusing chamber connected to said distal end of said optical fiber,

processing a shape memory polymer material so that it will expand into a somewhat umbrella shape upon being activated and act on the blockage, and

operatively connecting said shape memory polymer material to ~~an~~ said distal end of said optical fiber and to said diffusing chamber,

providing an optical source that provides light energy through said optical fiber to said diffusing chamber and to said shape memory polymer material to activate said shape memory polymer material so that it will expand into a somewhat umbrella shape and act on the blockage, and

connecting said optical source to said optical fiber to provide light energy through said optical fiber to said diffusing chamber and to said shape memory polymer material to activate said shape memory polymer material so that it will expand into a somewhat umbrella shape and act on the blockage.

Claim 2. (Original) The method of manufacturing an actuator for acting upon a material in a vessel of claim 1 wherein said step of processing a shape memory polymer material so that it will expand into a somewhat umbrella shape

upon being activated, includes, heating said shape memory polymer material above its melting temperature during processing.

Claim 3. (Original) The method of manufacturing an actuator for acting upon a material in a vessel of claim 1 wherein said shape memory polymer material has a primary shape before being activated and said step of processing a shape memory polymer material so that it will expand into a somewhat umbrella shape upon being activated, includes, polymerizing said shape memory polymer material while in its primary shape.

Claim 4. (Original) The method of manufacturing an actuator for acting upon a material in a vessel of claim 2 wherein said shape memory polymer material possesses a glass transformation temperature ( $T_g$ ) above which the material enters a reversible glassy phase where it becomes soft and flexible and easy to reshape the material and will return to its primary shape if not subjected to undue pressure and once cooled below  $T_g$ , the shape is frozen in place and the material becomes hardened and will hold its shape until it is intentionally relaxed by heating the SMP above  $T_g$  again.